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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/643,751	08/19/2003	Kentaro Yamaguchi	116-031357	4138

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EXAMINER
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VANORE, DAVID A

ART UNIT	PAPER NUMBER
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2881

DATE MAILED: 06/07/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/643,751

Applicant(s)

YAMAGUCHI ET AL.

Examiner

David A. Vanore

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☒ Claim(s) 1, 3, 6, 9-14, and 19-20 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☒ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 6/24/04.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_.

## **DETAILED ACTION**

### ***Information Disclosure Statement***

1. The information disclosure statement (IDS) submitted on June 24, 2004 is being considered by the examiner.

### ***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority based on applications filed in Japan on August 19, 2002 and July 2, 2003 respectively. It is noted, however, that applicant has not filed a certified copy of the Japanese applications as required by 35 U.S.C. 119(b).

### ***Claim Objections***

3. Claims 1, 3, 6, 9-14, and 19-20 are objected to because of the following informalities:
  4. Claim 1 recites the term "relatively movable" which is indefinite because it does not clearly set forth an element for moving the chamber, or the range of the motion.
  5. Claim 1 recites that the chamber "can" be moved. "Can" is indefinite because it does not require, but refers to the function in the alternative.
  6. Claim 1 recites the term "cold-spray" as an adjective to the desolvation chamber element. "Cold-spray" is not a term of art, not defined by the claim, and not defined clearly in the specification to convey any particular structural feature of the recited desolvation chamber.
  7. Claim 3 recites that the gas temperature is "adjustable" to a specified range for electrospray mode, and a different range for cold-spray mode. Stating that the gas "is

adjustable” to the temperatures recited in the claim does not require that the gas be in the indicated temperature ranges.

8. Claim 3 recites a bound of a temperature range as “room temperature.” The claim and specification do not define what “room temperature” is in terms of temperature.

9. Claims 6 and 19 recite that the potential of a sampling orifice is “setable” to lower or higher potential. This alternative language does not require that the potential be definitively set to a particular level.

10. Claims 9-10 recite that the heater is controllable to 100 Centigrade to 300 centigrade. This language is not clear. Firstly, it does not require that the heater be set to any given temperature. The fact that the heater is controllable does not require a specific range of operation. Secondly, the recitation that the heater is “controllable to approximately +100 to 300 degrees Centigrade” is unclear. Can +100 be interpreted to be any value over 100? Is the +100 to 300 degrees Centigrade range the range of accurate temperature control?

11. Claim 11 recites that the gas inlet port may be cut off and that the chamber may be deenergized. Neither of these functional recitations require that the actions be performed to produce the recited effect.

12. Claim 12 recites that a cooled gas may be supplied into a desolvation chamber. This is not a requirement that such cooled gas is supplied, or that structure required to supply the cooled gas is present. Further, how can the apparatus operate in “cold-

spray" ionization mode if cold gas is not supplied, or is not required to be supplied, to the desolvation chamber?

13. Claim 13 recites the temperature of the moveable chamber is "setable" to room temperature or below. The claim does not require that chamber is moved, or has an element which moves the chamber, and further does not require that the chamber is set to any particular temperature, or has means for lowering the temperature below a "room temperature" level. As pointed out above, the term "room temperature" is not defined by the claim or disclosure to adequately convey what the acceptable values for "room temperature" may be.

14. Claim 14 recites the term "setable", in that the chamber is "setable" between "room temperature" and zero degrees Centigrade. The use of the terms "settable" and "room temperature" is objected to for the reasons set forth above.

15. Claim 20 uses the term "setable" in the same context as claim 14 pointed out above, and is objected to for the same reasons.

16. Appropriate correction is required.

17. Claims 11-14 and 19-21 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. After considering MPEP 2114, it is apparent that claims 11-14 do not further structurally limit the apparatus recited in claims 1 or 4. The examiner read the functional language contained therein, and attempted to extract an implicit structure from a positive

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functional requirement. For at least the reason that all the functional language of claims 11-14 is set in the alternative, no implicit structural element could be discerned from the claims.

***Claim Rejections - 35 USC § 102***

18. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

19. Claims 1-6 and 8-21 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Yamaguchi (EP 1174903).

20. Regarding claims 1, 14, and 20-21, Yamaguchi teaches an electrospray mass spectrometer comprising an ion source (Fig. 2) having a nebulizing nozzle (Item 2) having an axis, a sampling orifice, Item 5, where the two axes intersect, the ion source comprising a coldspray desolvation chamber (Item 7) sprayed by liquid nitrogen from source (Item 9).

21. Regarding claim 2, Yamaguchi further teaches a capillary for guiding a sample (Item 3), and a pipe for guiding a nebulizing gas (Note path of gas around capillary, indicated by Item A).

22. Regarding claim 3, Yamaguchi teaches that the gas may be in the temperature range of liquid nitrogen to room temperature, which encompasses the ranges of gas temperature recited.

23. Regarding claim 4 and 11-13, Yamaguchi teaches that nebulizing nozzle is coupled to a heated cylindrical desolvation chamber (Item 7, and Col. 5 Lines 5-15) where the gas introduced is supplied for heating and drying of the sample (Col. 4 Lines 55-60).

24. Regarding claims 5 and 18, Yamaguchi teaches a potential difference of 3 kV between a nozzle (Item 2) and a sampling orifice (Item 5) as illustrated in Fig. 2), where the desolvation chamber is between the two, a potential expressable as hundreds of volts necessarily being induced between the orifice (5) and the chamber (7).

25. Regarding claims 6 and 19, one would inherently set the potential of a sampling orifice to the a lower potential to sample positive ions because a lower, or relatively negative, potential would attract positive ions though the sampling orifice. Further, one would inherently set the potential of a sampling orifice to the a higher potential to sample negative ions because a higher, or relatively positive, potential would attract negative ions though the sampling orifice.

26. Regarding claims 8-10, Yamaguchi teaches that desolvation is carried out at 300 degrees, and therefore has a heating means in the desolvation chamber to achieve this temperature (Col. 5 Lines 5-15).

27. Regarding claim 15, Yamaguchi teaches that liquid droplets are introduced from a side of the nozzle (Item 2), and that they are passed through a channel (Item 8), to be discharged opposite sampling orifice (Item 5).

28. Regarding claim 16, desolvation chamber (Item 7) is illustrated as being supported on a rod (attached to item 9).

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29. Regarding claim 17, Item 9 controls the temperature of chamber by spraying it with liquid nitrogen.

30. Regarding claim 20, the range of temperatures at which the device is operated is in the range of -20 degrees Centigrade to 300 degrees centigrade, and thus encompasses the ranges recited in claim 20 completely.

***Claim Rejections - 35 USC § 103***

31. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

32. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Yamaguchi (EP 1174903).

33. Yamaguchi teaches all the required limitations of claim 1.

34. Yamaguchi fails to explicitly teach a means for supplying a sample solution flow rate of 1 to 1000 microliters per minute to the nebulizing means disclosed.

35. Modifying the sample solution flow rate would be the selection of a fluid pumping means capable of supplying such a flow rate. The capacity to select one such pump being well within the capabilities of one having ordinary skill.

36. It would have been obvious to one having ordinary skill in the art at the time the invention was made to set a sample solution flow rate to between 1 and 1000 microliters



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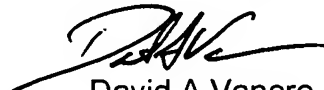
per minute because modifying the sample solution flow rate would advantageously allow for the control of the rate of ion production.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David A. Vanore whose telephone number is (571) 272-2483. The examiner can normally be reached on M-F 7:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R. Lee can be reached on (571) 272-2477. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

  
David A Vanore  
Patent Examiner  
Art Unit 2881

5/31/06

dav